

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] **CROSS-REFERENCE TO RELATED APPLICATIONS**

[0000.4] This application is a 35 USC 371 application of PCT/DE 03/01805
filed on June 2, 2003.

[0000.6] **BACKGROUND OF THE INVENTION**

Please replace paragraph [0001] with the following amended paragraph:

[0001] Specification Field of the Invention

Please replace paragraph [0004] with the following amended paragraph:

[0004] ~~From~~ European Patent Disclosure EP 1 026 373 A2, discloses an apparatus for
cleaning the exhaust gas stream of an internal combustion engine ~~is known, having in which~~
an ozone source **which** serves to enrich the exhaust gas stream with ozone. According to this
reference, an oxidizing catalytic converter, and downstream of the oxidizing catalytic
converter, a particle filter are disposed in the exhaust gas line. The delivery of ozone serves
to clean the particle filter of particles that have deposited there during engine operation. The
enrichment of the exhaust gas stream with ozone is effected between the oxidizing catalytic
converter and the particle filter. The ozone then reaches the particle filter along with the
exhaust gas. The particles react with the delivered ozone, since ozone has very low reactivity,
and self-ignition of the particles takes place even at relatively low temperatures of the exhaust
gas stream. The particles oxidize and are thus eliminated, as a result of which the particle
filter is cleaned.

Page 2, please replace paragraph [0007] with the following amended paragraph:

[0007] Advantages of the Invention

SUMMARY AND ADVANTAGES OF THE INVENTION

Page 6, please replace paragraph [0020] with the following amended paragraph:

[0020] Drawing BRIEF DESCRIPTION OF THE DRAWINGS

Please replace paragraph [0021] with the following amended paragraph:

[0021] Exemplary embodiments of the invention are ~~shown in the drawing and will be~~ described in further detail below, in conjunction with the drawings, in which: ; shown are:

Please replace paragraph [0022] with the following amended paragraph:

[0022] Fig. 1: ~~in~~ is a schematic illustration[[],] of an apparatus of the invention for cleaning exhaust gas, with an ozone source disposed outside the exhaust gas line;

Please replace paragraph [0023] with the following amended paragraph:

[0023] Fig. 2: ~~in~~ is a schematic illustration[[],] of an apparatus of the invention for cleaning exhaust gas, with an ozone source disposed inside the exhaust gas line;

Page 7, please replace paragraph [0024] with the following amended paragraph:

[0024] Fig. 3: ~~in~~ is a schematic illustration[[],] of an exhaust gas cleaning system with a particle filter;

Please replace paragraph [0025] with the following amended paragraph:

[0025] Fig. 4[[:]] is the flow chart of a method for controlling the ozone concentration, with continuous enrichment with ozone;

Please replace paragraph [0026] with the following amended paragraph:

[0026] Fig. 5[[:]] and the flow chart of a method for generating a particle filter after the engine is switched off; and

Please replace paragraph [0027] with the following amended paragraph:

[0027] Fig. 6[[:]] and the flow chart of a method for rinsing the exhaust gas line with ozone-enriched gas before the vehicle is started.

Please add the following new paragraph after paragraph [0027]:

[0027.5] DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace paragraph [0029] with the following amended paragraph:

[0029] The exhaust gas line 7 leads from the engine 1 to the tailpipe 13 of the exhaust gas line 7, where the exhaust gases leave the exhaust gas line 7. In the exhaust gas line 7 and associated with the exhaust gas line 7, there are various elements for cleaning exhaust gas, which together form an exhaust gas cleaning system. The exhaust gas cleaning treatment has the purpose of cleaning the exhaust gases expelled from the engine 1 of entrained pollutants to the maximal extent, or at least enough to meet legal requirements. The pollutants also include particles, for the most part soot, which occur because of incomplete combustion in the engine. The soot or particle formation is especially pronounced in Diesel engines. Such particles have a particle size of less than 100 nanometers (100 nm). Besides the elements shown in the drawing, still other elements for exhaust gas conditioning may be provided at a suitable point.

Page 8, please replace paragraph [0030] with the following amended paragraph:

[0030] In terms of the flow direction of the exhaust gases in the exhaust gas line 7, there is first an oxidizing catalytic converter 2, inside of which oxidation reactions, which have for

instance been incomplete, of hydrocarbons and NO_x to form CO₂ and NO₂ in the presence of a catalyst take place. Particles flow through such an oxidizing catalytic converter without being oxidized.

Please replace paragraph [0031] with the following amended paragraph:

[0031] In the further course of the exhaust gas line, there is a temperature sensor, which via the signal line 10 detects the exhaust gas temperature at that point and sends it to the control unit 6. Downstream of the temperature sensor, ~~the~~ a supply line 9 discharges into the exhaust gas line. Via the supply line 9, an ozone-containing gas stream is introduced into the exhaust gas stream, which as a result is enriched with ozone. As a result of the enrichment with ozone, a combustion of the particles is effected, substantially during the course of traveling the flight distance to the final muffler 4. The combustion starts by self-ignition because of the temperature in the exhaust gas line and the ozone concentration by self-ignition. The energy released during ~~the~~ combustion heats the exhaust gases, and the exhaust gas temperature is detected again downstream of the reaction path before it enters the final muffler 4 and a signal reflecting this temperature is delivered to the ozone source 5 via a signal line 11 of the controller 6.

Page 9, please replace paragraph [0035] with the following amended paragraph:

[0035] The embodiment of Fig. 2 differs from the embodiment of Fig. 1 in terms of the disposition of the ozone generator. The ozone source 5 is disposed in the region of the exhaust gas line 7, and its reaction chamber is located inside the exhaust gas line 7 itself. The ozone is formed essentially from oxygen contained in the exhaust gas stream. Oxygen is contained in the exhaust gas stream whenever the engine 1 is operated with a lean mixture preparation. Alternatively or in addition, a bypass line 14 may also be provided, which

introduces air from the intake tract of the engine into the exhaust gas line 7, bypassing the combustion chambers. The introduction of the air can be done already upstream of ~~an the~~ the oxidizing catalytic converter 2 that is disposed upstream of the ozone source 5.

Please replace paragraph [0036] with the following amended paragraph:

[0036] As an alternative embodiment to that of Fig. 1, in Fig. 2 the temperature sensor upstream of the ozone source is omitted, since instead of a further temperature sensor upstream of the final muffler 4, a particle sensor ~~is disposed, which~~ detects the particle content of the exhaust gas stream and sends its measurement values over the signal line 11 to the control unit 6, which in turn, via the control line ~~11~~ 12, varies the operation of the ozone source 5 such that the particle content at the particle sensor does not exceed a predetermined value.

Page 10, please replace paragraph [0039] with the following amended paragraph:

[0039] The exhaust gas line 7 leads from the engine 1 to the tailpipe 13 of the exhaust gas line 7, where the exhaust gases leave the exhaust gas line 7. In the exhaust gas line 7 and associated with the exhaust gas line 7, there are various elements for cleaning exhaust gas, which together form an exhaust gas cleaning system. The exhaust gas ~~cleaning treatment~~ has the purpose of cleaning the exhaust gases expelled from the engine 1 of entrained pollutants to the maximal extent, or at least enough to meet legal requirements. The pollutants ~~also~~ include particles, for the most part soot, which occur because of incomplete combustion in the engine. The soot or particle formation is especially pronounced in Diesel engines. Such particles have a particle size of less than 100 nanometers (100 nm).

Please replace paragraph [0040] with the following amended paragraph:

[0040] In terms of the flow direction of the exhaust gases in the exhaust gas line 7, there is first an oxidizing catalytic converter 2, inside of which oxidation reactions, which have for instance been incomplete, of hydrocarbons and NO_x to form CO₂ and NO₂ in the presence of a catalyst take place. Soot particles flow through such an oxidizing catalytic converter, at the relevant temperatures, for instance of < 280°C, without being oxidized.

Please replace paragraph [0041] with the following amended paragraph:

[0041] Both upstream and downstream of the oxidizing catalytic converter, ~~a supply line~~ lines 8 and 9, respectively, ~~is~~ are disposed for intermittently supplying ozone-containing gas to the exhaust gas line 7. Downstream of the supply line 9, there is a particle filter 3, through which the exhaust gas flows. Particles contained in the exhaust gas stream are trapped by the particle filter. The exhaust gas temperature can be detected at or downstream of the particle filter and sent to the controller 6 of the ozone source 5 over a signal line ~~11~~ 10. After flowing through the final muffler 4 and the tailpipe 13 of the exhaust gas line, the exhaust gases leave the exhaust gas system.

Page 13, please replace paragraph [0047] with the following amended paragraph:

[0047] Fig. 4 shows a method for performing an exhaust gas cleaning with continuous enrichment of ozone in the exhaust gas stream, in the way it is performed if the exhaust gas line 7 is free of a particle filter. In step 401, the question is asked whether the engine is in operation, since this is the prerequisite for the present method. As long as that is not the case, no further method steps are performed. As soon as it is ascertained in step 401 that the engine is in operation, then in step 402 the exhaust gas stream is enriched with ozone in the previously ~~effected~~ generated quantity or concentration; it does not matter whether the ozone

is generated in the exhaust gas line itself or in an external ozone source and delivered via a supply line 9.

Page 15, please add the following new paragraph after paragraph [0054]:

[0055] The foregoing relates to preferred exemplary embodiments of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.